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# Learning Assistance by Tutors in Enhancing the Pedagogical Competence of In-Service Teachers

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**Abstract**

This article reports the implementation and outcomes of a community service program (PKM) conducted by 7th-semester students of the SALUT LAMOKATO Study Group, Universitas Terbuka (UT), designed to enhance the pedagogical competence of in-service teachers through a structured tutor-assisted learning model. The program was implemented at SMPN 1 Wundulako, Wundulako District, Kolaka Regency, Southeast Sulawesi Province, Indonesia, involving 26 in-service teachers as participants over eight weeks (October–November 2025). A quasi-experimental one-group pre-test–post-test design was employed, supplemented by classroom observation, reflective journals, and semi-structured interviews. The program targeted three key pedagogical dimensions: competency-based lesson planning, active learning strategy implementation, and authentic assessment design. Results of a paired-samples t-test revealed a statistically significant improvement in overall pedagogical competence ($t(25) = 14.73$, $p < .001$, Cohen's $d = 2.89$), with the mean score rising from 54.8 to 77.6 a gain of 22.8 points bringing 84.6% of participants above the government-mandated proficiency threshold of 75. Qualitative findings identified four primary mechanisms of change: psychological safety in the tutor–teacher relationship, contextualized observational feedback, reflective journaling as metacognitive scaffolding, and institutional support from school leadership. The study affirms that structured tutor-assisted learning, implemented by trained UT students, constitutes an effective and scalable model for in-service teacher professional development in remote and underserved Indonesian educational contexts.

***Keywords***: Tutor-Assisted Learning, Pedagogical Competence, In-Service Teachers, Universitas Terbuka, Community Service Program

## 1. INTRODUCTION

The quality of a nation's education is fundamentally determined by the quality of its teachers. In Indonesia, teachers are legally mandated to possess four core competencies pedagogical, personal, social, and professional as stipulated in Law No. 14 of 2005 on Teachers and Lecturers. Among these, pedagogical competence occupies a central position because it directly governs a teacher's capacity to design, implement, and evaluate effective, learner-centered instruction (Shulman, 1987; Darling-Hammond, 2000). Pedagogical competence encompasses the understanding of learner development, curriculum design, instructional strategy selection, educational technology integration, and authentic assessment construction competencies that are continuously demanded by the evolving Indonesian educational landscape.

Despite the availability of various in-service professional development mechanisms including government-sponsored Diklat, school-based In-House Training (IHT), and the Teacher Working Groups (KKG) a persistent and well-documented gap exists between the knowledge acquired in such programs and teachers' actual classroom practice (Guskey, 2002; Clarke & Hollingsworth, 2002). Results of the National Teacher Competency Test (Uji Kompetensi Guru/UKG) recorded a national average pedagogical competence score of only 55.9 out of 100 substantially below the government-mandated proficiency target of 80 (Kemdikbud, 2021). These aggregate deficiencies are acutely

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reflected in remote and rural educational settings, including Wundulako District, Kolaka Regency, Southeast Sulawesi Province, where limited access to sustained professional development compounds existing competence gaps.

Universitas Terbuka (UT), as Indonesia's open and distance learning university with a mandate to reach underserved communities across the archipelago, embeds community service (Pengabdian kepada Masyarakat/PKM) as a core academic requirement within its study programs. For 7th-semester students of the SALUT LAMOKATO Study Group a local tutorial group affiliated with the UPBJJ-UT Kendari regional office in Southeast Sulawesi the PKM program represents both a curricular obligation and a meaningful opportunity to contribute to educational quality improvement in their immediate communities. In the 2025 academic year, the SALUT LAMOKATO group designed and implemented a structured tutor-assisted learning program targeting 26 in-service teachers at SDN 1 Wundulako, Wundulako District, under the academic supervision of a UT faculty supervisor. The program was grounded in two complementary theoretical frameworks: Vygotsky's (1978) *Zone of Proximal Development* (ZPD), which posits that professional competence develops most effectively through guided interaction with a more capable other, and Schon's (1983) framework of *Reflective Practice*, which identifies critical self-examination of teaching behavior as the primary engine of professional growth. In this program, UT 7th-semester students prepared through a systematic tutor training workshop served as trained pedagogical tutors, facilitating teachers' professional learning through iterative cycles of collaborative lesson planning, classroom observation, evidence-based feedback, and guided reflection over eight consecutive weeks.

This article presents the design, implementation, and empirical outcomes of the program. It is organized around three objectives: (1) to describe the structured tutor-assisted learning model implemented at SMPN 1 Wundulako; (2) to document the implementation process and program fidelity across the eight-week period; and (3) to assess the program's measurable impact on the pedagogical competence of 26 participating in-service teachers. The findings are intended to inform future PKM program design within UT and to contribute to the broader evidence base on effective, context-sensitive models of in-service teacher professional development in Indonesia.

## 2. RESEARCH METHODOLOGY

### 2.1 Research Design

This study adopted a quasi-experimental one-group pre-test–post-test design (Campbell & Stanley, 1963), supplemented by embedded qualitative methods to form a convergent mixed-methods framework (Creswell & Plano Clark, 2018). The quantitative component assessed the magnitude and statistical significance of changes in participants' pedagogical competence before and after the eight-week tutoring intervention. The qualitative component comprising structured classroom observation field notes, participants' reflective journals, and semi-structured focus group interview data explored the processes, relational dynamics, and contextual factors underpinning the observed quantitative outcomes. A mixed-methods approach was selected because the evaluation of a complex, multi-component professional development intervention requires both rigorous measurement of outcomes and thick description of the processes through which those outcomes were achieved. The design follows the convergent parallel model recommended by Creswell and Plano Clark (2018), in which quantitative and qualitative data streams are collected concurrently, analyzed separately, and integrated at the interpretation stage to produce a comprehensive account of program effectiveness.

### 2.2 Setting and Context

The program was implemented at SMPN 1 Wundulako, located in Wundulako District (Kecamatan Wundulako), Kolaka Regency (Kabupaten Kolaka), Southeast Sulawesi Province (Provinsi Sulawesi Tenggara), Indonesia. SMP N 1 Wundulako is a state elementary school serving a predominantly rural and semi-urban community in Wundulako District an area characterized by limited access to regular, sustained in-service teacher professional development beyond occasional government-sponsored training workshops. The school was selected as the program implementation site on the basis of four criteria established by the PKM team: (1) the preliminary needs assessment

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results, which documented significant gaps in teachers' pedagogical competence across all three targeted dimensions; (2) the school principal's confirmed institutional support and willingness to accommodate the program's scheduling requirements; (3) the school's geographical accessibility to the SALUT LAMOKATO student-tutors based in the local UPBJJ-UT Kendari service area; and (4) the school's full-school participation commitment, ensuring all active teaching staff were included as program participants. The PKM program was conducted over eight consecutive weeks, from October 6 to November 29, 2025, with tutoring sessions organized on a weekly schedule. The program was designed, implemented, and documented by 7th-semester students of the SALUT LAMOKATO Study Group, Universitas Terbuka, under the academic supervision of Dr, Supratman, S.Pd., M.Pd, a faculty member from the PGSD Study Program, FKIP, Universitas Terbuka.

### 2.3 Participants

The study involved 26 in-service teachers recruited from various schools in Kolaka as program participants. The community service (PKM) activities were conducted at SMPN 1 Wundulako. All teachers who were actively teaching during the program period were invited to participate, resulting in full participation. Participation was voluntary, and all 26 teachers provided written informed consent. The complete demographic profile of participants is presented in Table 1.

**Table 1. Demographic Profile of Program Participants (N = 26)**

| No. | Characteristic | Category | n (%) |
|---|---|---|---|
| 1 | Gender | Male | 9 (34.6%) |
| | | Female | 17 (65.4%) |
| 2 | Teaching Experience | < 5 years | 7 (26.9%) |
| | | 5–15 years | 12 (46.2%) |
| | | > 15 years | 7 (26.9%) |
| 3 | Educational Qualification | Diploma (D3/D4) | 5 (19.2%) |
| | | Bachelor's Degree (S1) | 21 (80.8%) |
| 4 | Subject Taught | Class Teacher (Grades 1–6) | 18 (69.2%) |
| | | Physical Education | 3 (11.5%) |
| | | Religious Education & Other | 5 (19.3%) |
| 5 | Civil Servant Status | Civil Servant (PNS) | 16 (61.5%) |
| | | Contract/Honorary Teacher | 10 (38.5%) |

The tutoring team comprised one tutors from the SALUT LAMOKATO Study Group (7th Semester, 2025 Academic Year), organized into three tutor pairs. Each pair was assigned to a group of 8–9 participant teachers, maintaining a functional tutor-to-teacher ratio of approximately 1:4 during individual tutoring sessions. Prior to program implementation, all six student-tutors completed a mandatory two-day Tutor Preparation Workshop (October 2–3, 2025), facilitated by the Universitas Terbuka, covering: tutoring methodology and communication skills; structured use of the classroom observation rubric; protocols for evidence-based post-conference feedback delivery; management of the reflective journaling process; and professional ethics in tutor–teacher relationships.

### 2.4 Program Intervention Design

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The program intervention followed a four-phase structured tutoring model developed by the SALUT LAMOKATO PKM team, drawing on the cognitive coaching framework of Costa and Garmston (2002) and adapted to the specific instructional needs and resource context of SDN 1 Wundulako. The four phases, their timelines, and key activities are summarized in Table 2.

**Table 2. Phases, Timeline, and Key Activities of the Tutor-Assisted Learning Intervention**

| Phase | Name | Timeline | Key Activities |
|---|---|---|---|
| 1 | Pre-Implementation & Orientation | Week 1 (6–10 Oct) | Needs assessment and baseline profiling; pre-test administration (Pedagogical Competence Test); program orientation workshop for all 26 participants; tutor–teacher group assignment; collaborative goal-setting; distribution of tutoring modules and observation instruments |
| 2 | Intensive Tutoring Cycle A: Lesson Planning Focus | Weeks 2–4 (13–31 Oct) | 3 weekly tutoring cycles per teacher: (a) pre-conference collaborative competency-based RPP/lesson plan design; (b) full classroom observation using structured rubric; (c) post-conference evidence-based feedback, self-assessment, and improvement planning; (d) reflective journal entry by teacher within 24 hours |
| 3 | Intensive Tutoring Cycle B: Active Learning & Assessment Focus | Weeks 5–7 (3–21 Nov) | 3 weekly tutoring cycles per teacher: same four-step cycle structure; targeted focus on: student-centered active learning strategies (cooperative learning, problem-based learning, Bloom's Taxonomy-aligned questioning); design and application of authentic assessment instruments (rubrics, portfolios, performance tasks) |
| 4 | Evaluation & Dissemination | Week 8 (24–29 Nov) | Post-test administration (Pedagogical Competence Test); Focus Group Discussion (FGD) for program evaluation; data analysis; preparation and submission of PKM activity report; dissemination of results to school principal, school committee, and UPBJJ-UT Kendari supervisor |

Each weekly tutoring cycle in Phases 2 and 3 followed a structured, evidence-based four-step sequence. Step 1: Pre-Conference (approximately 30 minutes) a structured planning conversation between tutor and UT program coordinator who concurrently serves as a senior teacher in which they collaboratively formulated lesson objectives, selected instructional strategies, identified anticipated student learning challenges, and agreed on focus areas for the upcoming classroom observation. Step 2: Classroom Observation (40–60 minutes) the tutor conducted a full lesson observation using the Structured Classroom Observation Rubric (SCOR), recording specific behavioral evidence aligned with the pre-established focus areas and generating a detailed observational record for post-conference discussion. Step 3: Post-Conference (approximately 40 minutes) the tutor facilitated a structured debriefing conversation organized around three questions: What did you plan? What did you observe? What will you change? The tutor presented observational evidence, invited teacher self-assessment, collaboratively interpreted pedagogical patterns, and co-constructed specific, actionable improvement strategies. Step 4: Reflective Journal (24-hour submission) each teacher completed a one-page structured reflective journal within 24 hours of the cycle, documenting: key insights from the session, the

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most significant instructional challenge identified, a specific pedagogical adjustment to be implemented in the next cycle, and any questions or concerns for discussion in the following pre-conference.

### 2.5 Data Collection Instruments

Three primary instruments were employed for data collection in this study:

1) **Pedagogical Competence Test (PCT).** A 40-item written instrument assessing three dimensions of pedagogical competence: (a) Lesson Planning and Curriculum Design (15 items), covering competency-based RPP construction, learning objective formulation, and instructional resource selection; (b) Active Learning Strategy Knowledge and Application (15 items), covering student-centered instructional approaches, differentiated instruction, and higher-order questioning techniques; and (c) Authentic Assessment Design (10 items), covering rubric construction, portfolio assessment, and alignment of assessment with learning objectives. Items were adapted from the national UKG item bank (Kemdikbud, 2021) and validated through expert content review (content validity ratio > 0.80 for all items). Internal consistency reliability, assessed on a pilot sample of 30 teachers from a neighboring school, yielded a Cronbach's alpha coefficient of $\alpha = 0.87$, indicating high reliability. The PCT was administered as both pre-test (Week 1, October 6, 2025) and post-test (Week 8, November 28, 2025), with parallel forms used to minimize test-retest familiarity effects.

2) **Structured Classroom Observation Rubric (SCOR).** A 24-item rubric organized around the same three pedagogical dimensions as the PCT, rated on a 4-point behaviorally anchored scale (1 = Below Standard, 2 = Approaching Standard, 3 = Meeting Standard, 4 = Exemplary). Inter-rater reliability between tutor pairs was calibrated through a joint observation session using video-recorded lessons prior to program implementation, achieving a Cohen's Kappa of $\kappa = 0.84$, indicating strong inter-rater agreement. SCOR data were used formatively as the evidential basis for post-conference discussions and summatively as a qualitative data source for thematic analysis of instructional change patterns across cycles.

3) **Semi-Structured Focus Group Interview Guide.** An 8-item guide was developed to facilitate the end-of-program Focus Group Discussion (FGD) held in Week 8. The guide addressed: overall perceptions of the program's value and usefulness; the most and least helpful components of the tutoring experience; changes in classroom practice attributed to the program; perceived barriers to implementation; and intentions for sustaining practice changes after program completion. The FGD was conducted in two groups (Group A: 13 participants; Group B: 13 participants), each lasting approximately 75 minutes, facilitated by the Faculty Supervisor with note-taking by two student-tutors not assigned to that group. Sessions were audio-recorded with participants' consent and transcribed verbatim for thematic analysis.

### 2.6 Data Analysis Procedures

Quantitative data from the PCT pre-test and post-test were analyzed using IBM SPSS Statistics Version 20. The analytical sequence comprised three steps. First, descriptive statistics (means, standard deviations, minima, maxima) were computed for both pre-test and post-test scores, disaggregated by pedagogical dimension. Second, data normality was assessed using the Shapiro-Wilk test, appropriate for sample sizes below 50 (Field, 2018). Pre-test scores ($W = 0.962$, $p = .418$) and post-test scores ($W = 0.971$, $p = .617$) both satisfied the normality assumption, justifying the use of parametric statistical procedures. Third, a paired-samples t-test was conducted to determine the statistical significance of the difference between pre-test and post-test mean scores at the overall and dimension levels. Effect size was quantified using Cohen's d, calculated as the mean difference divided by the standard deviation of the difference scores (Cohen, 1988). The conventional thresholds of $d = 0.20$ (small), 0.50 (medium), and 0.80 (large) were applied for interpretation. Statistical significance was set at $\alpha = 0.05$.

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Qualitative data comprising 156 reflective journal entries, six cycles of SCOR field notes across 26 tutor-teacher pairs, and two FGD transcripts were analyzed using the six-phase thematic analysis framework of Braun and Clarke (2006): (1) data familiarization through repeated reading and initial noting; (2) systematic initial coding of the full dataset; (3) collation of codes into candidate themes; (4) review of themes against coded extracts and the full dataset; (5) definition and naming of final themes; and (6) production of the analytic report. To enhance credibility, member checking was conducted with a purposively selected sub-sample of six participants (representing diversity in gender, teaching experience, and subject taught), who reviewed a draft summary of the emerging themes and confirmed or qualified the interpretations. Quantitative and qualitative findings were integrated at the interpretation stage through a convergent triangulation process, with each qualitative theme linked to corresponding quantitative patterns to produce a coherent, multi-layered account of program processes and outcomes.

### 2.7 Ethical Considerations

The program was conducted in strict adherence to research ethics principles. Prior to program commencement, the following consent and clearance procedures were completed: (1) written informed consent was obtained individually from all 26 participant teachers, clearly explaining the purpose of the program, the nature of data collection, their right to withdraw at any time without academic or professional consequence, and the procedures for data storage, anonymization, and publication; (2) institutional permission was obtained from the Principal of SDN 1 Wundulako and the Head of the Wundulako District Education Office; and (3) ethical clearance was secured from the Research Ethics Committee of UPBJJ-UT Kendari All participant data reported in this article are presented in anonymized or aggregate form to protect individual identities. Audio recordings from FGD sessions are stored in a password-protected institutional repository accessible only to the research team and the Faculty Supervisor.

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### 2.8 Stages of Research and Community Service (PKM) Implementation

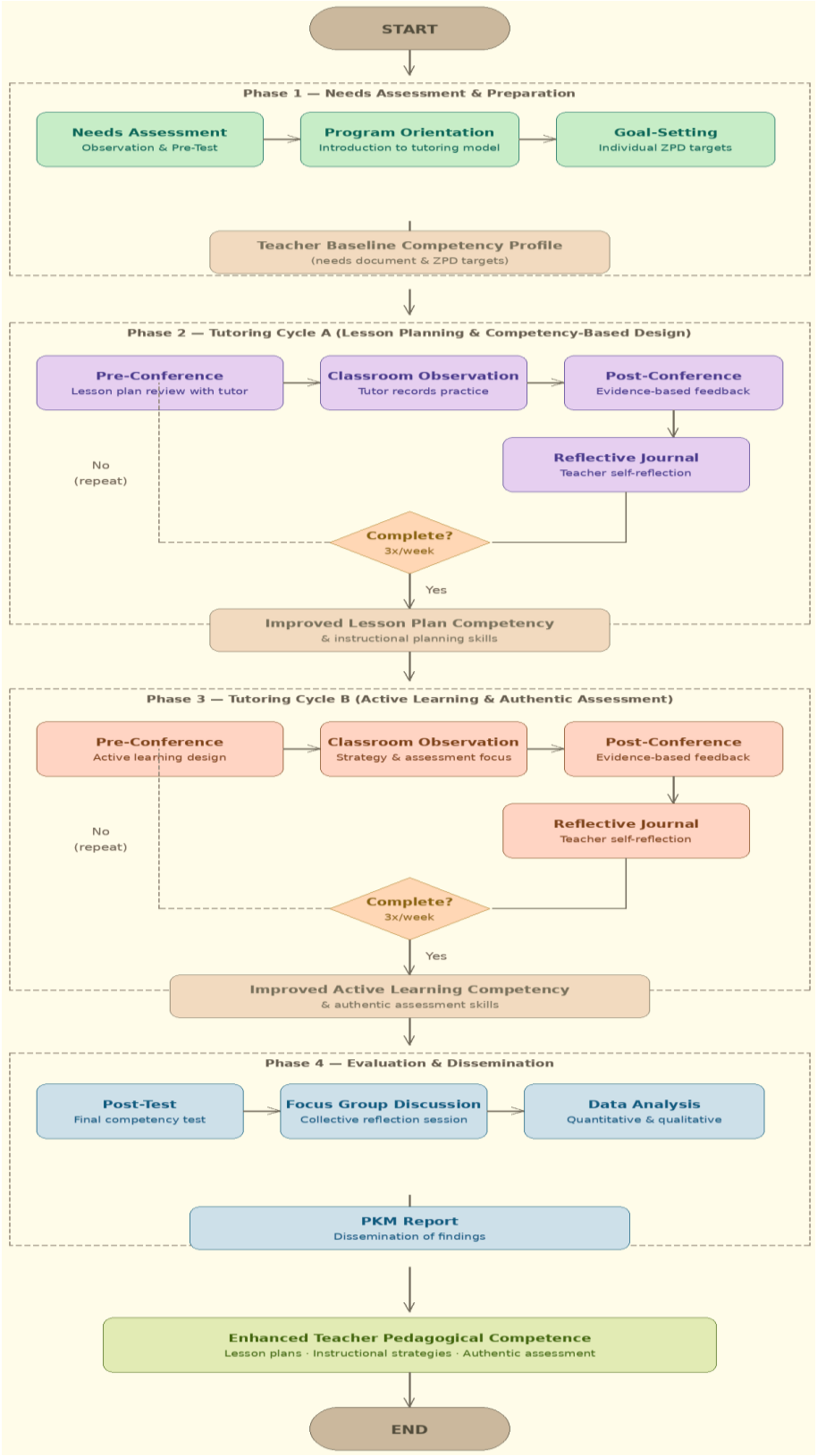


**Figure 1. Visual Representation of PKM Implementation stages**

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## 3. RESULTS AND DISCUSSION

### 3.1 Baseline Pedagogical Competence Profile

Pre-test results indicated that the mean overall pedagogical competence score among the 26 participants at SDN 1 Wundulako was 54.8 (SD = 8.3) out of 100 substantially below the government-mandated proficiency threshold of 75. The Shapiro-Wilk test confirmed normality of the pre-test score distribution (W = 0.962, p = .418). Table 3 presents the disaggregated baseline scores by pedagogical dimension.

**Table 3. Pre-test Baseline Scores by Pedagogical Dimension (N = 26)**

| Pedagogical Dimension | Min | Max | Mean | SD |
|---|---|---|---|---|
| Lesson Planning & Curriculum Design | 40 | 72 | 56.2 | 7.8 |
| Active Learning Strategy Implementation | 36 | 68 | 52.4 | 8.9 |
| Authentic Assessment Design | 34 | 70 | 55.9 | 8.1 |
| **Overall Pedagogical Competence** | **37** | **70** | **54.8** | **8.3** |

The Active Learning Strategy Implementation dimension recorded the lowest mean score (52.4), consistent with pre-program observational findings documenting widespread reliance on teacher-centered, lecture-based instructional approaches. Authentic Assessment Design and Lesson Planning also fell well below the 75-point proficiency threshold, confirming the patterns documented in national UKG reports (Kemdikbud, 2021) and the preliminary needs assessment conducted prior to the program.

### 3.2 Program Implementation: Fidelity and Dynamics

Over the eight-week program period, a total of 156 individual tutoring cycles were completed across 26 tutor-teacher dyads (6 cycles per teacher: 3 in Phase 2, 3 in Phase 3). Program participation was exceptionally high: 24 of 26 participants (92.3%) completed all six tutoring cycles in full; the remaining two participants completed five cycles each, having been absent from one session due to administrative duties outside the school. A total of 156 reflective journal entries were submitted and collected (100% submission rate), providing a rich and continuous documentary record of participants' professional learning trajectories across the program period. Mean tutoring cycle duration was 118 minutes (SD = 12.4), comprising approximately 30 minutes of pre-conference, 48 minutes of classroom observation, and 40 minutes of post-conference. SCOR observation data documented a consistent and progressive improvement in teaching quality across cycles for the majority of participants. The most frequently recurring instructional challenges identified in early-cycle observations included: (1) structural misalignment between stated learning objectives, instructional activities, and assessment tasks; (2) absence of formative assessment checkpoints during lesson delivery; (3) dominance of low-order recall and comprehension questions with insufficient use of higher-order analytical and evaluative questioning; and (4) limited application of cooperative or problem-based learning structures, with teacher exposition dominating lesson time. These patterns were systematically addressed in post-conference discussions, incorporated into the next pre-conference planning session, and reflected upon in participants' journal entries, with observable behavioral shifts documented in tutor field notes from the third cycle onward.

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### 3.3 Impact on Pedagogical Competence: Quantitative Results

Post-test results demonstrated statistically significant and practically substantial improvements in participants' pedagogical competence across all three measured dimensions. The Shapiro-Wilk test confirmed normality of post-test score distribution (W = 0.971, p = .617). Table 4 presents the comparative pre-test and post-test descriptive statistics alongside paired-samples t-test results and Cohen's d effect sizes.

**Table 4. Pre-test–Post-test Comparison and Paired-Samples t-Test Results (N = 26)**

| Pedagogical Dimension | Pre-M (SD) | Post-M (SD) | Gain | t(25) | p | d |
|---|---|---|---|---|---|---|
| Lesson Planning & Curriculum Design | 56.2 (7.8) | 78.9 (6.2) | +22.7 | 13.41 | < .001 | 2.63 |
| Active Learning Strategy Implementation | 52.4 (8.9) | 75.1 (6.8) | +22.7 | 14.09 | < .001 | 2.76 |
| Authentic Assessment Design | 55.9 (8.1) | 78.8 (6.5) | +22.9 | 13.87 | < .001 | 2.72 |
| **Overall Pedagogical Competence** | **54.8 (8.3)** | **77.6 (6.4)** | **+22.8** | **14.73** | **< .001** | **2.89** |

*Note: M = Mean; SD = Standard Deviation; d = Cohen's d effect size; all p-values two-tailed*

The program produced a mean overall competence gain of 22.8 points from 54.8 (pre-test) to 77.6 (post-test) statistically significant at $t(25) = 14.73$, $p < .001$. The Cohen's d of 2.89 represents an exceptionally large effect size, far exceeding the conventional threshold for large effects ($d \geq 0.80$). In practical terms, 22 of 26 participants (84.6%) surpassed the government-mandated proficiency threshold of 75 in the post-test, compared to zero participants in the pre-test. All 26 participants (100%) exceeded their own pre-test score in the post-test. The largest dimensional gain was recorded in Authentic Assessment Design (+22.9 points), followed by Active Learning Strategy Implementation (+22.7 points) and Lesson Planning & Curriculum Design (+22.7 points).

### 3.4 Qualitative Findings: Mechanisms of Professional Change

Thematic analysis of the 156 reflective journals, 156 cycles of SCOR field notes, and two FGD transcripts produced four primary themes explaining the mechanisms through which the tutoring program generated professional growth among participants.

a) **Theme 1 : *Psychological Safety as the Relational Foundation of Growth.*** Participants consistently and explicitly identified the trust-based, non-evaluative nature of the tutoring relationship as the precondition that enabled them to acknowledge pedagogical weaknesses openly and experiment with new instructional approaches without fear of judgment. In the FGD, one participant observed: "This was the first time someone came to my class not to assess me, but to help me. That made all the difference." This theme resonates with Achinstein and Athanases' (2006) identification of relational trust as a foundational precondition for effective pedagogical mentoring.

b) **Theme 2 : *Contextualized Observational Feedback as a Catalyst for Practice Change.*** Participants repeatedly distinguished, both in reflective journals and FGD contributions, between the generic prescriptive advice characteristic of conventional training workshops and the specific, evidence-referenced feedback provided during post-conference sessions. The tutors' consistent anchoring of feedback to specific, named moments within the observed lesson "At minute 23, when you asked the class..." made guidance immediately comprehensible,

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credible, and actionable, thereby bridging the persistent knowing-doing gap documented in the professional development literature (Guskey, 2002).

c) **Theme 3 : *Reflective Journaling as Metacognitive Scaffolding.*** Longitudinal analysis of the 156 journal entries revealed a consistent developmental trajectory in the quality and depth of participants' reflective writing. Early-cycle entries (Weeks 2–3) were predominantly descriptive: "I taught the lesson and students completed the worksheet." By Weeks 5–6, entries showed substantially greater analytical depth and self-directedness: "I realized that my questioning only reached C1 and C2 levels. In the next lesson, I will prepare three Bloom's Level 4 questions in advance." This trajectory directly mirrors Schon's (1983) conceptualization of the progressive development of reflection-on-action as a professional learning capacity.

d) **Theme 4: *Institutional Support as a Structural Enabler.*** The school principal's active, sustained institutional support including restructuring the weekly timetable to protect tutoring session time, participating in the orientation workshop, and publicly affirming the program's value at the weekly school assembly was consistently identified by participants as a critical enabler of program engagement and completion. Multiple participants noted in the FGD that without protected time and visible leadership endorsement, participation would have been significantly more difficult to sustain. This finding directly corroborates Desimone's (2009) structural model of professional development effectiveness, which identifies institutional coherence and leadership support as non-negotiable contextual prerequisites.

### 3.5 Documentation of PKM Activities

This section presents visual documentation of the Community Service Program (Pengabdian kepada Masyarakat/PKM) as empirical evidence of the activities carried out. The documentation reflects the active engagement of participating teachers and student-tutors throughout all stages of the program, including planning, implementation, and reflective practice.


**Figure 1.** In-service teachers from SDN 1 Wundulako actively participating in a pre-conference tutoring session facilitated by 7th-semester students of the SALUT LAMOKATO Study Group, Universitas Terbuka, during the PKM tutor-assisted learning program.

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**Figure 2.** A tutor-assisted learning session in progress at SDN 1 Wundulako, showing participant teachers engaged with learning materials during the pre-conference phase of the weekly tutoring cycle implemented by the SALUT LAMOKATO PKM team.


**Figure 3.** Full-group post-conference session at SDN 1 Wundulako, with the SALUT LAMOKATO student-tutor facilitating discussion on competency-based lesson planning (RPP) and pedagogical skills for all 26 in-service teacher participants.

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**Figure 4.** Closing group photograph of the SALUT LAMOKATO Study Group (7th Semester, Universitas Terbuka) with their academic supervisor and participants at SDN 1 Wundulako, marking the successful completion of the eight-week PKM tutor-assisted learning program.

### 3.5 Discussion

The results of this PKM program provide compelling empirical evidence that structured tutor-assisted learning, implemented by trained 7th-semester UT students from the SALUT LAMOKATO Study Group, constitutes an effective model for enhancing the pedagogical competence of in-service teachers in the specific context of SDN 1 Wundulako, Wundulako District. The exceptionally large effect size (Cohen's d = 2.89) and high proficiency attainment rate (84.6%) are noteworthy, and should be interpreted in light of the absence of a control group and the intensive nature of the weekly tutoring cycles. The magnitude of observed gains is consistent with, though larger than, the average effect sizes reported in Kraft et al.'s (2018) meta-analysis, potentially reflecting the combination of high program fidelity, strong relational conditions, and the participants' acute baseline deficiency all factors that prior research identifies as associated with larger professional development effect sizes. From a theoretical perspective, the findings validate the application of Vygotsky's ZPD construct within adult, in-service professional learning contexts. The four-step tutoring cycle particularly the pre-conference scaffolding and the progressively self-directed post-conference discussions created the conditions for sustained ZPD-based professional growth, with participants demonstrating increasing instructional autonomy across cycles. The longitudinal evolution of reflective journal entries provides direct, granular evidence of Schon's reflection-on-action mechanism being progressively activated, suggesting that structured journaling is not merely a documentation tool but an active metacognitive intervention.

The program also demonstrates the viability and value of UT's student-as-tutor model for in-service teacher professional development. The SALUT LAMOKATO 7th-semester students, after systematic preparation through the Tutor Preparation Workshop, proved capable of facilitating meaningful and measurable professional growth among

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practicing teachers. This finding extends the near-peer tutoring literature (Topping, 2005) into the domain of teacher professional development and supports the integration of structured student-led tutoring as a formal component of UT's PKM curriculum across regional study groups. The primary limitation of the study is its single-group quasi-experimental design, which precludes definitive causal attribution of the observed competence gains exclusively to the tutoring intervention. Future programs implementing this model should consider randomized or waitlist-control designs to strengthen causal inference. Additionally, the sustainability of competence gains beyond the eight-week program period has not been assessed; longitudinal follow-up studies are needed. The relationship between improvements in teachers' measured pedagogical competence and distal outcomes particularly student learning achievement also remains an important unaddressed question for future investigation in the Wundulako and broader Southeast Sulawesi context.

## 4 CONCLUSION

This study has demonstrated that a structured, eight-week tutor-assisted learning program, designed and implemented by 7th-semester students of the SALUT LAMOKATO Study Group, Universitas Terbuka, at SMPN 1 Wundulako, Wundulako District, Kolaka Regency, produced statistically significant and practically substantial improvements in the pedagogical competence of all 26 participating in-service teachers. The overall mean competence score increased by 22.8 points from 54.8 to 77.6 with a Cohen's d of 2.89 indicating an exceptionally large effect. 84.6% of participants surpassed the government-mandated proficiency threshold of 75 upon program completion. The program's effectiveness rested on four interlocking mechanisms: the psychological safety of trust-based tutor–teacher relationships; the contextual specificity and evidential grounding of post-observation feedback; the metacognitive scaffolding function of structured reflective journaling; and the enabling function of sustained school leadership support. These mechanisms collectively produced a learning environment in which practicing teachers could bridge the persistent gap between pedagogical knowledge and classroom practice in an individualized, contextualized, and sustained manner. Three recommendations are advanced. First, the structured tutor-assisted learning model comprising pre-conference collaborative planning, classroom observation, evidence-based post-conference feedback, and guided reflective journaling should be formally institutionalized within in-service teacher professional development frameworks at school and district levels in Kolaka Regency and across Southeast Sulawesi Province, supplementing or replacing conventional mass-training approaches. Second, Universitas Terbuka should formalize and standardize the student-as-tutor PKM model across regional study groups, providing systematic tutor preparation frameworks, validated observation instruments, and structured supervision protocols as permanent components of the PKM curriculum. Third, the Ministry of Education and regional education offices should explore policy mechanisms for scaling the tutoring model including leveraging advanced UT students as trained pedagogical tutors as a cost-effective, high-impact strategy for reaching and developing in-service teachers in remote and underserved educational contexts such as Wundulako District.

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